DOCUMENT RESUME

ED 220 840 CS 207 152

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TITLE Teaching, Testing, and Technology: English in the Eighties.
PUB DATE Oct 82
NOTE 22p.; Paper presented at the Meeting of the Michigan Council of Teachers of English (East Lansing, MI, October 29-31, 1982).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Educational Cooperation; Educational Improvement; Educational Practices; *Educational Trends; *English Instruction; Futures (of Society); Microcomputers; *Teaching Conditions

ABSTRACT

Despite its educational centrality, teaching cannot be as positive and effective a force as it might and should be unless a number of conditions prevail. Foremost is that teachers be given greater voice in curricular decisions. Teaching must receive stronger financial support and greater respect from the public if the profession is to attract and hold academically competent teachers. The industrial model of education, which fails to accommodate either individual differences among learners or the continuing revolution in telecommunications, must also be altered. The Back-to-Basics movement and minimum competency testing, which have reduced English from a rich and complex subject to one concerned with promoting low-level skills of reading and editing, must be tempered. Evidence also suggests that teachers have done little in English classes to help students exert dominion over nonprint media. As computers play an increasing role in education, programs to enlist the aid of national, state, and local governments and private business in coordinating information develop, but it is time to ask about the computer's particular significance to English instruction. The potential for better software programs exists, but even if high quality programs were available, there is no guarantee that schools would have equal access to them. There remains the problem of how best to educate teachers to operate microcomputers and use them effectively in classrooms. Rather than replacing teachers, the computer could liberate them to do the teaching that they alone can do. (HTH)

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TEACHING, TESTING, AND TECHNOLOGY:

ENGLISH IN THE EIGHTIES

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When I first learned that I was to speak today to the triple I's of teaching, testing, and technology, I was reminded of an exercise in paragraphing that an erstwhile colleague at the University of California at Berkeley periodically imposed upon students. He would first present a class with three sentences disparate in content: for example, "Alexander Haig resigned as U.S. Secretary of State on June 25, 1982"; "The annual rainfall in Boise, Idaho, is 14 inches"; "Children from ages four to eight prefer fudge over any other confectionery." He would then invite the students to incorporate the three sentences into a single paragraph without using any of the three as the topic sentence. To complete the assignment, neophyte writers were forced to scramble, sometimes frantically, up ladders of abstraction in pursuit of a generalizing principle, a sentence that could relate, however fragilely, the seemingly unrelated.

Like those students, I was initially sent scurrying for a thesis by my assignment, a statement that might unite in partnership teaching, testing, and technology. But I soon despaired, realizing that any attempt to wed the three under a unifying rubric would result at best in a shotgun ceremony, an unholy and unwholesome union. There can be no joining of equals, for testing and technology are and must remain subordinate to teaching, the sine qua non of education.

Despite its educational centrality, however, teaching can not be as positive and effective a force in the lives of students as it might and should be unless a number of conditions pertain that are wanting at present.

Foremost is that teachers must be given greater voice in curricular decisions. For the past fifteen years, teachers have wasted thousands of hours in responding to one curricular movement or another over which they have had little or no control--they have been forced to trivialize learning through specification of behavioral objectives, to tailor their teaching to others' notions of what is basic to education, to prepare their students for legislatively mandated programs of competency testing.

After wryly observing that "in the profession of teaching, the greater one's distance from a classroom, the greater one's pay and authority and the easier one's job," Miles Myers comments in "The Politics of Minimum Competency" (*The Nature and Measurement of Competency in English*, ed. Charles R. Cooper, NCTE, 1981):

> Organizations like NCTE need to insist that districts begin to use practicing teachers as curriculum consultants, that NIE (National Institute of Education) set aside part of its budget for research on teaching by classroom teachers, that the history of K-12 teachers be researched and honored--in summary, that the authority of teachers be developed and recognized. Teachers cannot afford to develop mechanisms for power [for example, the creation of unions] and ignore mechanisms for authority. If they do, they will end up organizing teachers and find that they have been turned into the watchdogs of trivia, the monitors of kits and packaged programs, the paper pushers and form fillers for other people.

If teaching is to have the authority Mr. Myers desires for it, it must be able to attract and to hold academically competent teachers. For that condition to exist, it must receive from the public stronger financial support and greater respect than it presently receives. Education is no longer the sole professional refuge for intelligent women, who now have access to schools of medicine, law, and business, fields offering far greater prestige and pay than does education. The low regard with which teaching is held, coupled with the inadequate and uncompetitive salaries it proffers to beginners, has resulted nationally in schools of education being now populated with students who have scored in the bottom quintile of those taking the Scholastic Achievement Test, with students whose high-school grades are much lower than are those of students admitted into other fields, with the least academically qualified group of candidates in twenty-five years. While I would concede immediately that no perfect correlation exists between either grade-point average or high performance on aptitude tests and ability to teach, though I would grant that empathy and compassion are requisite to pedagogical competence, I would rather have my two sons, ages thirteen and fifteen, taught by humane, and knowledgeable teachers than humane, and uninformed ones.

My intuitions tell me that if we are to attract and to hold highly qualified teachers, we must first alter the current

industrial model of education, a model that demeans teachers while simultaneously failing to accommodate either individual differences among learners or the continuing revolution in telecommunications, a revolution that has been likened in cultural importance to the developments of speech, of writing, and of print.

In *Education and the Cult of Efficiency*, (University of Chicago Press, 1962), Raymond Callaghan observes that until the approximate turn of this century, an educational administrator was essentially an educational philosopher, a person who articulated the curriculum to the community on philosophical grounds. But with the growth of industry in the first decades of the century, with the tax monies for the schools being derived largely from taxes upon industry, and with the time-motion studies in industry being carried on by Frederick Taylor, Frank Gilbreth, and others, administrators were increasingly called upon to defend what was going on in the schools not on the grounds of its philosophical worth but on the grounds of its efficiency. The result was that administrators allied themselves with industrial leaders, and instead of interpreting the will of educators to the business community, they were soon interpreting, and enforcing upon educators, the will of businessmen. Within a short time the school was viewed as being analogous to an industrial plant ("school-plant planning"); administrators, rather than being at the service of teachers, perceived themselves as employers, and,

as befits those in power, they surrounded themselves with the secretarial help, telephones, and office machines that one finds in the quarters of most professionals. Teachers, though assured they belonged to a noble profession, were treated as workers on an assembly line, responsible for processing so many students ("work load") through so many courses over so many years (Carnegie units), following which students were labeled as products of the institution.

As teachers, we know that each student is unique, but the model does not. Forced to try to teach far too many students at a time, we reluctantly compose assignments for groups when we would prefer tailoring them for individuals. As teachers, we know that humans learn in sporadic ways, but the model does not. Compelled to parcel out subjects in forty-to-fifty minute segments, we are dictated to by bells rather than by the curiosity of learners. As teachers, we know that we are surrounded by an electronically transmitted aural/visual environment, but the model does not. Our classes lack the very equipment which provides contemporary students with most of their information if not the majority of their values--television sets, AM/FM radios, stereophonic record and tape players.

Until education frees itself from the constraints of an inappropriate industrial model, until as teachers we have at our command videotape recorders and TV sets, radios, records, stereo players, cassettes, and books and magazines galore; until we have

the paraprofessional help and the flexibility in programming that would permit us, depending upon the appropriateness of the occasion, to tutor individuals, to lead discussions with small groups, to lecture, or to supervise individual and group projects; until we have the professional status accorded administrators, including the human and mechanical aids that assist other professionals, we will not be able to attract and hold able teachers nor help each student bring to full fruition whatever dormant or budding excellence lies within.

Rather than freeing education from unnecessary inhibitory constraints, the Back-to-Basics movement and its handmaiden, Minimum Competency Testing, have further shackled it. They have reduced English in the eyes of the public from a rich and complex subject concerned principally with transmission of humanistic values through language and literature to one concerned with promoting low-level skills of reading and editing. Reductive in their effects, and one more example of how curriculum becomes shaped by what is fiscally efficient rather than academically sound, the tests ignore the importance of literature to the cultivation of the imagination and to the spiritual life of a democracy; they ignore speaking effectiveness and listening comprehension, for these primary communicative processes do not readily lend themselves to paper-and-pencil quantification; and in place of composing for oneself, they substitute editing the words of anonymous others.

In those few states that have mandated actual tests of writing, students have been given only twenty to thirty minutes in which to produce a coherent piece of discourse, scarcely sufficient time for prewriting, for the tentative exploration of a topic. Such under-the-gun assignments belie what we say about the composing process, about the recursive and often belabored acts of prewriting, writing, and revising. As Lee Odell notes in "Defining and Assessing Competence in Writing" (*The Nature and Measurement of Competence in English*), "Unless we have given students reasonable opportunity to make their best showing as writers, our judgments about their competency as writers will almost certainly be limited and misleading." Furthermore, as Mr. Odell makes clear, because different rhetorical aims and modes evoke different rhetorical skills from an author, and because the competence of even skilled writers varies from day to day, "If we want to assess a student's ability to perform more than one kind of writing task, we must have at least two samples of the student's writing for <u>each kind of writing</u>."

No one would argue that testing should be eliminated from American education. In *Common Sense and Testing in English* (NCTE, 1975), the Task Force on Measurement and Evaluation in the Study of English cites how results of measurement can legitimately be used in identifying needs, evaluating individual and group progress, making decisions about teaching, and guiding students into appropriate programs. But one must use tests with caution

and with full awareness of their limitations. This awareness the public seems not to possess, mainly because test makers have been reluctant to trumpet the weaknesses of their wares. How many lay people realize, for example, how low the validity of the SAT is in predicting the academic performance of students in their first year of college? Information about validity is contained in a single paragraph on page 9 of *On Further Examination: A Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline* (College Entrance Examination Board, 1977):

> The predictive validity of both the Verbal and Mathematical parts of the SAT increased between 1970 and 1974 in the colleges that had validity studies made during that period, while the predictive ability of high school grade records was staying about level. High school grades are still the best single predictors of college performance, but when these grades are combined with SAT scores, more accurate prediction proves possible. It illuminates this picture only for those experts in the field to note that, as of 1971, the median validity coefficients for the combined six samples used in the ETS study were .39 for the SAT-Mathematical score, .42 for the SAT-Verbal score, .50 for the high school grade records, and .58 for the three predictors combined. The comparable median validity coefficients in 1970 were .29 for the SAT-Mathematical, .37 for SAT-Verbal, .49 for high school grade records.

Yet the public continues to voice more concern about, and to invest more faith in, SAT scores than in the cumulative record of four years of high school education, itself not a highly reliable predictor.

As I noted earlier, test makers will measure what is convenient to rapid and efficient scoring, not necessarily what is most educationally sound. For five years, from 1974-79, I chaired the English Advisory Committee of the College Board, a committee responsible for monitoring tests of English sponsored by the Board. Despite repeated protests from the Committee, the Board continues to administer what it calls The Test of Standard Written English, not a test of writing at all but rather a multiple-choice test of editing; and it continues to call for only one twenty-minute sample of writing in only one of six administrations of the English Composition Test, again, more a test of editing others' prose than of the ability to generate for oneself a short coherent composition.

Reasons for selecting a so-called objective format for testing--objective only in the scoring process, never in the selection of items--may make sound economic sense, but the long-term consequences can be debilitating to education. After analyzing results from the 1979-80 National Assessment of Reading and Literature, the authors of *Reading, Thinking, and Writing* (National Assessment of Educational Progress, 1981), concluded

that short-answer tests were in good part responsible for students' superficial interpretations of literature:

> The results summarized in this report suggest that American schools have been successful at teaching students to formulate quick and short interpretations, but have not yet developed in students the skills they need to explain and defend the judgments they make. The end result is an emphasis on shallow and superficial opinions at the expense of reasoned and disciplined thought....Tests are a direct reflection of what is valued by the school. If teacher-made tests, as well as standardized examinations, rely exclusively on short-answer formats, the message will be clear to teachers and students alike. Essay questions that require students to explain their points of view should be a regular part of any testing program. (pg. 4)

I was one of a number of consultants asked to interpret data from the 1979-80 National Assessment of Reading and Literature. One memorable finding was that students who on self-assessment questionnaires reported themselves to be either very good readers or very poor readers were, according to evidence of their performance on items of comprehension and interpretation. In short, students knew in advance how well they would do on the assessment. My guess is that teachers also know whether students are good readers or poor readers. If my guess is correct, we need to ask whether minimal competency tests are providing us with any new information, information that would enhance students' education. If not, we ought to be using for the improvement of classroom instruction the money now being allocated for testing programs.

An article by Thomas Toch appearing in the June 16, 1982, edition of *Education Week* ("Tests Don't Help Teachers Teach, Officials Argue") indicates that those who design and administer state-wide competency tests are themselves becoming disillusioned about the value of the tests:

> Standardized tests, which have become a primary preoccupation of states and school systems eager to prove the effectiveness of their educational activities to a skeptical public, are the focus of growing criticism even by the people who design and administer them.
>
> The tests often fail to provide teachers with information they can use to improve the schoolwork of the students who are tested. And the pervasive use of so-called "minimum basic-skills" tests in particular has tended to depress the quality and vitality of the educational process itself.
>
> These and other criticisms of testing were aired last week by some of the 225 people gathered here [Boulder, Colorado] for the twelfth Annual Conference on Large-Scale Assessment, a meeting co-sponsored by the Education Commission of the States (ECS) and the National Assessment of Educational Progress (NAEP).

Curiously, as the Task Force on Measurement and Evaluation in the Study of English noted in 1975, neither production in media nor understanding and appreciation of media are currently assessed by standardized tests of English, despite the pervasive influence of non-print media on students' tastes and values. We live in an environment that McLuhan referred to as the Electronic Surround, an environment in which verbal and nonverbal messages are being electronically transmitted to us in micro-seconds from distant reaches not only of the globe but of space. The environment is

one in which telephones, computers, calculators, transistor radios, cable and broadcast television, stereo sets with records and tapes, video tape and disc recordings have become the stuff of our daily lives.

To appreciate how a given medium is a message, how it transforms a society by reorganizing its activities, one needs to ask how the society would change if the medium were eliminated. How, for example, would behavior in the United States differ if, tomorrow, all TV sets were permanently shut off? What difference would it make if computers were eliminated from the society? Radios? Telephones? Jet aircraft? Automobiles? Electric lights?

As a people, we clearly have become reliant upon the mechanical and electronic artifacts of our culture. A critical issue is whether we have become slavishly dependent upon these creations or whether we can still exercise judicious discrimination and, with it, control.

To date, evidence suggests that we have done little in English classes to help students exert dominion over nonprint media. As Herb Karl points out in "What It Means to Be Media Competent" (*The Nature and Measurement of Competency in English*), skills for comprehending the verbal content of electronic media do not differ appreciably from the skills of interpretation and critical judgment expected of a literate person. According to Mr. Karl, a competent person is one able to

do the following with the verbal content of media:

> ...distinguish between claims and appeals in advertising; recognize bias (social, economic, political, technical) in news and entertainment programming, fictional or documentary films and broadcasts, and advertising; distinguish between reports, inferences, and judgments in news programming, and determine the effects of context on "the news."

As little as we have done in teaching students how to analyze the verbal content of TV and film, we have done even less to help them to assess how shot composition, sound editing, motion, color, and lighting affect their emotions and judgments. Ironically, because we English teachers are, by tradition and education, print bound, we may first have to develop tests of minimal competencies in media--as expensive as these might be to create and administrate--before we begin to take seriously our responsibility to this dimension of the curriculum. If so, the process would not be the first by which tests dictated curricula.

Besides teaching analysis of the verbal content and the nonverbal composition of TV and film, what additional obligation does the computer impose upon the teacher of English? "Computer literacy," a phrase in vogue, is not a phrase clear in definition: Does it imply that students should be able to demonstrate competency in using computers? Does it imply that they should know binary theory and the inner workings of computers? Does it imply that they should be able to understand and assess present and potential effects of computers upon their lives? Does it

perhaps imply all of these, and more besides?

Though the definition of computer literacy may be moot, the intrusion of computers into education is not. Evidence is ubiquitous that computers are going to play an increasingly prominent role in the classroom. With the support of IBM, Dr. John Henry Martin is using the computer to teach writing and reading to 10,000 five-and six-year-olds in Florida, North Carolina, Minnesota, and Washington, D. C. (*Education Week*, August 25, 1982); at the Air Force Academy, Hugh Burns has developed computer programs that stimulate invention in composition according to the heuristics of Aristotle, Kenneth Burke, and Young, Becker, and Pike (*College English*, Feb. 1982); in 1986, every student at Carnegie-Mellon University will be furnished a computer for personal and academic use, (*New York Times*, April 4, 1982); beginning last month (September), kindergarten students in three school districts in New York City--districts 2 and 3 in Manhattan and 9 in the Bronx--commenced learning all subjects through a combination of traditional and computerized methods, a program that will continue through grade six (*Education Week*, March 24, 1982); according to a survey by Market Data Retrieval, Inc., at least 15,000 of the nation's 100,000 elementary and secondary schools are now using microcomputers as teaching tools (*New York Times*, April 4, 1982), while it is estimated that by 1990 one of every four children will have access to a microcomputer in school (*Education*

Week, November 16, 1982); a program to enlist the aid of national, state, and local governments and private businesses in coordinating information about computer programs in the nation's schools was launched in June, 1982, under the title Basic Education Skills Through Technology (*Austin American-Statesman*, June 25, 1982); *Teletext and Videotext in the United States*, a report sponsored by the National Science Foundation and prepared by the Institute for the Future, forecasts that by 1998 family life and schooling will be more closely linked through a variety of informational services, including a two-way, or interactive wedding of computer and television (*Education Week*, June 6, 1982).

I could parade additional citations of present or future uses of the computer in education, but it is time to ask, "What is the general significance of the computer to American education, and what is its particular significance to the teaching of English?

Although a number of major publishers--Houghton Mifflin, McGraw Hill, Milliken, SRA, Random House, Scholastic, Scott/Foresman--are developing and distributing computer software, most current programs are found wanting according to "Evaluating Instructional Software for the Microcomputer," a study co-sponsored by Education Products Information Exchange (EPIE) and the Microcomputer Resource Center at Teachers College. Vicki L. Blum, who conducted the study, reports that few existing programs teach concepts; most objectives for the programs fail to include

"higher-order skills," such as comprehension, application, synthesis, and evaluation; the great majority of large programs are in mathematics; most programs emphasize "drill-and-practice" techniques; most programs are for use in elementary schools. The study calls for the development of programs, for both secondary and elementary schools, that teach critical-thinking skills, problem-solving techniques, and application and synthesis of concepts (*Education Week*, March 31, 1982).

Certainly, the potential for better programs exists. P. Kenneth Komoski, executive director of EPIE Institute and an outspoken critic of present electronic courseware, which he terms "mental chewing gum," opined as follows in *Education Week*, April 21, 1982:

> The marvelous thing about the microcomputer is not that it can be used to teach kids long division or multiplication. Children don't really need microcomputers to learn that type of software. The marvelous thing about the microcomputer is the kind of software it *could* contain, if educators were willing to demand that it be designed for learners. If educators demanded it, schools could have software that would meet individual learners where they are and enable them to go as far as they can go individually, by thinking their way through whatever they need to learn. The software that learners need is software that will exploit fully the microcomputer's educational potential. Clearly, that potential is enormous. But it will not be fulfilled automatically.

Even if high quality programs were available, no present assurance exists that schools would have equal access to them. Microcomputers and their attendant software are

expensive, and though some districts have surmounted funding shortages through the contributions of parents, industries, university faculties, and concerned citizens with an interest in computers, poorer districts often lack the human and financial resources that might enable them to compete with wealthy districts. At "The Future of Electronic Learning," a conference sponsored last April by Teachers College, Columbia University, speakers warned that distribution of classroom computers could split the nation's students into classes of "haves" and "have-nots." Sam Gibbon, executive director of a project in science and mathematics education, Bank Street College of Education, Manhattan, asserted, "We must find ways of enabling children in poorer districts to have access to the electronic learning environment in addition to students in well-to-do areas." However, cautioned Joyce Hakansson, former coordinator of computer education at the Lawrence Hall of Science in Berkeley, California, equal access to technology for all students does not guarantee varied use of it. She noted that studies have shown that non-affluent schools tend to control students' learning environment by limiting use of the computer to remedial instruction, particularly to drill exercises. (*New York Times*, April 21, 1982)

If problems related to the quality and equitable distribution of computer programs were both resolved, there

would still exist the problem of how best to educate teachers to operate microcomputers and to use them effectively in the classroom. Most experienced and most beginning teachers lack such education, and evidence suggests they will not quickly acquire it. An unpublished survey of approximately 500 teacher-education programs conducted last summer by Vernon S. Gerlach, professor of education at Arizona State University, Tempe, revealed that only 160 schools (32 percent of those surveyed) offered one or more computer-education courses at either the undergraduate or graduate level. Of the schools surveyed, only about 10 offered a master's degree in computer education, and no state required computer courses for teacher education. Many schools of education, financially pinched by declining enrollments and a weak economy, find the purchase of microcomputers prohibitively expensive. Even if they had more money, these schools would find it difficult to compete with industry for qualified instructors. Efforts to eliminate the need for additional faculty by re-educating established professors in the educational uses of computers have met with resistance: professors have been reluctant to learn a new field and, like colleagues in the public schools, are afraid of exposing their ignorance. (*Education Week*, May 5, 1982).

Nevertheless, none of the problems I have cited is irresolvable. The "computer revolution" is still in its

infancy. When Alvin Toffler wrote *Future Shock*, he failed to mention the microcomputer, for it had yet to make its appearance. I harbor no doubts that the computer in decades ahead will play a critical role in the teaching of English, a role that could free teachers from the tedium of lockstep instruction in the skills of reading, spelling, punctuation, usage, grammar, etc., a role that could permit students to engage not alone in low-level exercises of drill and practice but in intellectually provocative simulations and tutorials; a role that, through self-pacing, could ultimately free students to participate in many of the humanistic courses they can not presently take, overprogrammed as they are with "requirements." I have in mind such courses as speech and drama, art and art appreciation, music and music appreciation, dance, and creative writing.

Rather than replacing teachers, the computer, used wisely, could liberate them to do what they alone can do. In "The Computer: Myths and Promises" (*Curriculum Review*, February 1982), Edward Finkel makes the following observation:

> Good teaching involves an incredibly complex set of behaviors and attitudes. The essential point of teaching is that one human being assumes some measure of responsibility for another one's learning. Teaching is much more than "telling," and even good telling is hard to find. Authors who approach the description of teaching behavioristically often develop meaningless statements. They cannot code enthusiasm, hope,

> energy, or the intuitive ability to find the right words to communicate with a given student. These are the most important aspects of teaching, and they lie in a domain which the computer cannot enter.

Computers cannot replace such shared human experiences as participating in family outings, telling stories, being read to, discussing the significance of a character's behavior, or hitting a baseball. They should not become the most pervasive experience in a student's life. But even with careful guidance, they will exert a powerful influence on each of us. On that note, Mr. Finkel concludes his insightful observations, making a fit end to this speech:

> At this point in history certain trends have already become irreversible, but others may still be altered. The only thing which is certain is that computers will continue to develop and grow smaller, will continue to extend their influence further into our lives, and will continue to change themselves and us. The potential is theirs; the hope is ours.